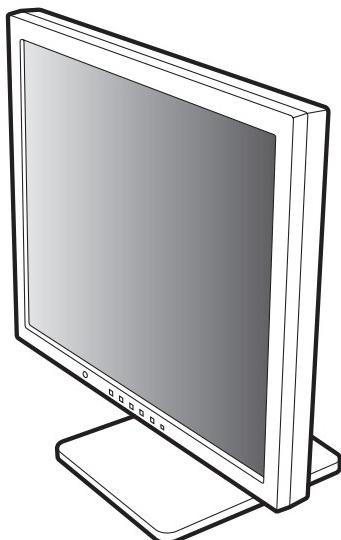


SHARP SERVICE MANUAL

CODE : 00ZLLT17A4SME



LCD MONITOR

LL-T17A4-H
MODEL LL-T17A4-B

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Model Name	Product Name		Color
	For USA	For Other	
LL-T17A4H	LL-T17A4U	LL-T17A4E	Ivory
LL-T17A4B	LL-T17A4Y	LL-T17A4P	Black

Parts marked with "⚠" are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

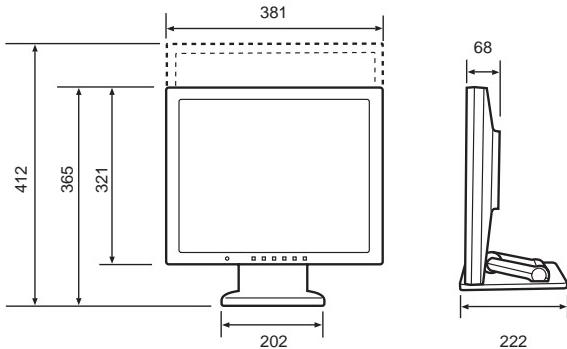
CHAPTER 1. OUTLINE OF THE PRODUCT, NOMENCLATURE AND FUNCTION

1. SPECIFICATIONS

■ Product specifications

- Model name
LL-T17A4-H (Ivory)/LL-T17A4-B (Black)
- LCD display
43 cm measured diagonally
TFT LCD module
- Resolution (max.)
SXGA 1280 x 1024 pixels
- Displayable colors (max.)
Approx. 16.19 million colors (6bit+FRC)
- Brightness (max.)
250cd/m²
- Dot pitch
0.264 (H) x 0.264 (V) mm
- Contrast ratio
430 : 1
- Angle of visibility
Left-right 170°; Up-down 150° (contrast ratio > 5)
- Screen display size
Horizontal 337.9 mm x Vertical 270.3 mm
- Video signal
Analog RGB (0.7Vp-p) [75Ω]
- Sync signal
Separate Sync (TTL level: +/-), Sync on Green, Composite Sync (TTL level: +/-)
- Expansion compensation
Digital scaling (Enlarges VGA/SVGA/XGA etc. to full screen size.)
- Plug & Play
VESA DDC2B compatible
- Power management
VESA: based on DPMS
- Speaker output
1W + 1W
- Input signal terminal
Mini D-sub 15 pin (3 row)
- Audio input terminal
Mini stereo jack
- Headphone terminal
Mini stereo jack
- Screen tilt
Upward approx. 0° - 20°; downward approx. 0° - 5°
- Screen swivel
Approx. 90° from left through right (Turn table type)
- Power supply
AC100 - 240V, 50/60Hz
- Temperature of operating environment
5 - 35°C
- Power consumption
33 W (with no audio input)
(36 W maximum, 1.6 W when in power-saving mode)
- Dimensions
Approx. 381 (W) x 222 (D) x 365 - 412 (H) mm
- Weight
Approx. 6.3kg (approx. 4.1kg excluding stand)
(Excluding signal cable.)

■ Dimensions (Units: mm)



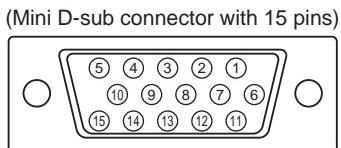
- Analog signal cable: approx. 1.8 m
- Audio cable: approx. 1.8 m

■ Relevant signal timings

	Display mode	Hsync	Vsync	Dot frequency
VESA	640 x 480	31.5kHz	60Hz	25.175MHz
		37.9kHz	72Hz	31.5MHz
		37.5kHz	75Hz	31.5MHz
	800 x 600	35.1kHz	56Hz	36.0MHz
		37.9kHz	60Hz	40.0MHz
		48.1kHz	72Hz	50.0MHz
		46.9kHz	75Hz	49.5MHz
	1024 x 768	48.4kHz	60Hz	65.0MHz
		56.5kHz	70Hz	75.0MHz
		60.0kHz	75Hz	78.75MHz
	1152 x 864	67.5kHz	75Hz	108.0MHz
	1280 x 960	60.0kHz	60Hz	108.0MHz
	1280 x 1024	64.0kHz	60Hz	108.0MHz
		80.0kHz	75Hz	135.0MHz
US text	720 x 400	31.5kHz	70Hz	28.3MHz
Power Macintosh series	640 x 480	35.0kHz	66.7Hz	30.2MHz
	832 x 624	49.7kHz	74.6Hz	57.3MHz
	1024 x 768	60.2kHz	75Hz	80.0MHz
	1152 x 870	68.7kHz	75Hz	100.0MHz
	1280 x 1024	64.0kHz	60Hz	108.0MHz
		80.0kHz	75Hz	135.0MHz
Sun Ultra series	1024 x 768	48.3kHz	60Hz	64.13MHz
		53.6kHz	66Hz	70.4MHz
		56.6kHz	70Hz	74.25MHz
	1152 x 900	61.8kHz	66Hz	94.88MHz
		71.8kHz	76.2Hz	108.23MHz
	1280 x 1024	71.7kHz	67.2Hz	117.01MHz
		81.1kHz	76Hz	134.99MHz

- Recommended resolution is 1280 x 1024.
- All are compliant only with non-interlaced.
- Frequencies for Power Macintosh and Sun Ultra series are reference values. To connect, another adapter (commercially available) may be required.
- If the monitor is receiving timing signals that are not compatible, [OUT OF TIMING] will appear.
Follow your computer's instruction manual to set the timing so that it is compatible with the monitor.
- If the monitor is not receiving any signal (synch signal), [NO SIGNAL] will appear.

■ The analog RGB input connector pin



No.	Function	No.	Function
1	Red video signal input	9	+5V
2	Green video signal input	10	GND
3	Blue video signal input	11	GND
4	GND	12	DDC data
5	GND	13	For Hsync signal input
6	For red video signal GND	14	For Vsync signal input
7	For green video signal GND	15	DDC clock
8	For blue video signal GND		

■ Power management

The monitor is based on VESA DPMS (Display Power Management Signaling).

To activate the monitor's Power Management function, both the video card and the computer must conform to the VESA DPMS standard.

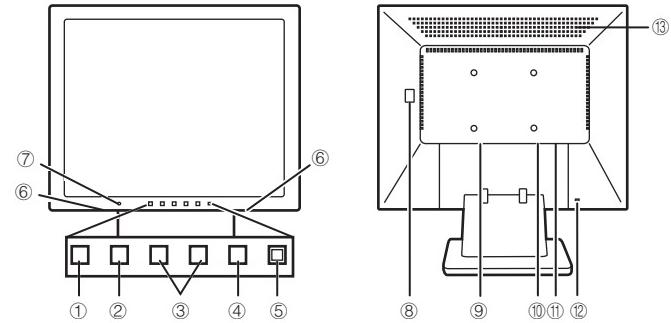
DPMS mode	Screen	Power consumption	H-sync	V-sync
ON	Display on	36W	Yes	Yes
STANDBY			No	Yes
SUSPEND			Yes	No
OFF			No	No

■ DDC (Plug & Play)

This monitor supports the VESA DDC (Display Data Channel) standard. DDC is a signal standard for carrying out Plug & Play functions on the monitor or PC. It transfers information such as degree of resolution between the monitor and PC. You can use this function if your PC is DDC compliant and if it is set so that it can detect the Plug & Play monitor.

There are many varieties of DDC due to the differences between systems. This monitor works with DDC2B.

2. PRODUCT DESCRIPTION



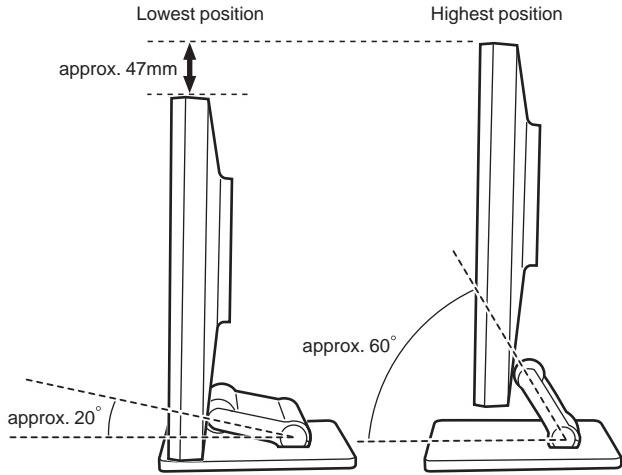
① MENU button	This button is used to pop-up, select and close the OSD (On Screen Display) Menu.
② ▼/MODE button	When the OSD Menu is displayed: This button is used to select menu options. When the OSD Menu is not displayed: This button is used to set DISPLAY MODE.
③ ▲▼ buttons	When the OSD Menu is displayed: These buttons are used to select an option or adjust the value of the selected option. When the OSD Menu is not displayed: These buttons are used to adjust backlight brightness and speaker volume.
④ Power button	Pressing this button turns the power on. Press the button again to turn the power on.
⑤ Power LED	This LED is lit green when in use and orange when in power-saving mode.
⑥ Speakers	Audio entering via the external device connected to the monitor can be heard.
⑦ Headphone terminal	Headphones (commercially available) can be connected here.
⑧ Main power switch	
⑨ Power terminal	
⑩ Analog RGB input terminal	The analog signal cable is connected here. The analog signal cable included should be used.
⑪ Audio input terminal	A computer's audio output terminal can be connected here. The audio cable included should be used.
⑫ Security lock anchor	By connecting a security lock (commercially available) to the security lock anchor, the monitor is fixed so that it cannot be transported. The security slot works in conjunction with Kensington Micro Saver Security Systems.
⑬ Ventilation openings	Note: Never block the ventilation openings as this may lead to overheating inside the monitor and result in malfunction.

■ Height adjustment, angle adjustment

Caution:

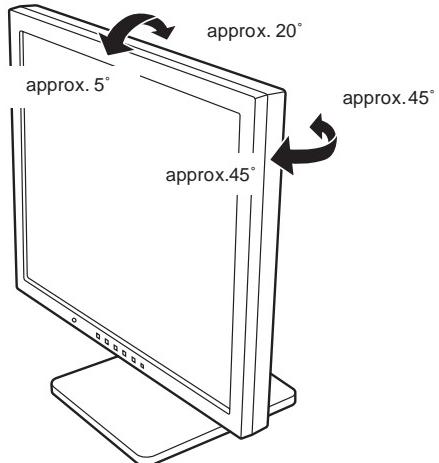
- Pressure from hands on the LCD panel could cause damage.
- Do not attempt to move the monitor beyond its movement range. Applying excessive force to move the monitor may damage the product.
- Be careful not to allow your fingers to be pinched.

Height adjustment



- When positioning the display higher, hold the stand tight so that it does not move together with the display.

Angle adjustment



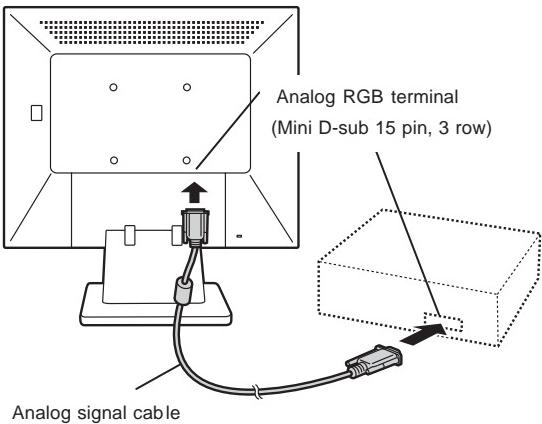
CHAPTER 2. CONNECTION, ADJUSTMENT, OPERATION, AND FUNCTIONS

1. CONNECTION

Caution:

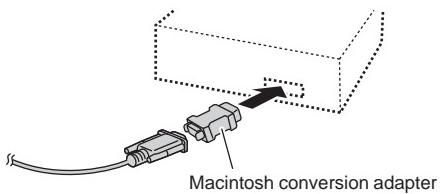
- When connecting, ensure that both the monitor and computer are switched off.
- Be careful not to overly bend the cable or add extension cords as this could lead to a malfunction.

1-1. Connecting the monitor to a computer



- Paying attention to connector direction, firmly insert the signal cable vertically into the connector, and then tighten the screws at both sides.

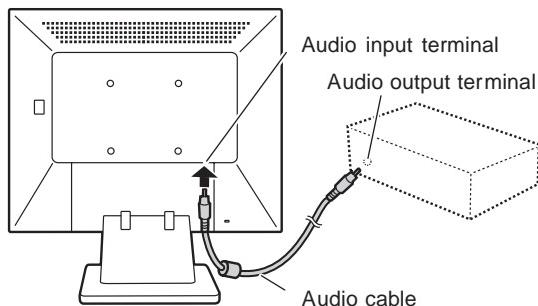
If connecting to a D-sub 15 pin 2 row Apple Power Macintosh, attach a Macintosh conversion adapter (commercially available) to the analog signal cable.



Note: If connecting to the Sun Ultra series, a conversion adapter (commercially available) may be required.

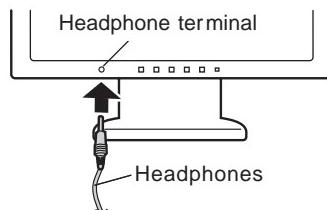
■ Connect the accessory audio cable

When the accessory audio cable is connected to the audio output terminal of the computer, the sound of the connected computer is output from the monitor speakers. You can also use the headphone jack of the display.



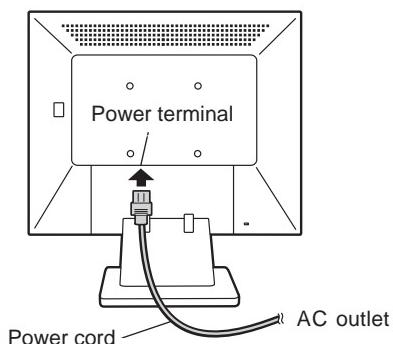
1-2. Connection of headphones (commercially available)

Headphones (commercially available) can be connected.



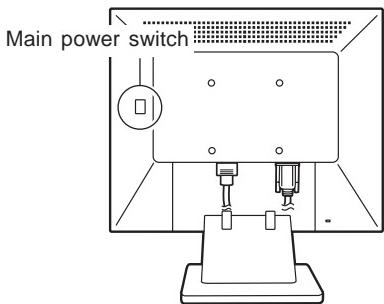
Note: When the headphones are connected, no sound can be heard from the monitor speakers.

1-3. Connecting the monitor to a power source.



1-4. Turning the power on

1. Turn on the main power of the monitor.

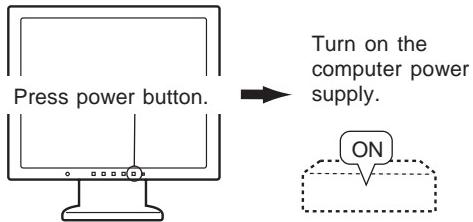


- When switching the main power switch on and off, always wait for an interval of at least 5 seconds. Rapid switching may result in malfunction.

2. Press the monitor's power button.

The power LED will light up orange.

3. Turn on the computer.



- When a signal is input from the computer, the power LED lights up green, and the screen is displayed. (After power is turned on, it may take a little time until the screen is displayed.)

Note:

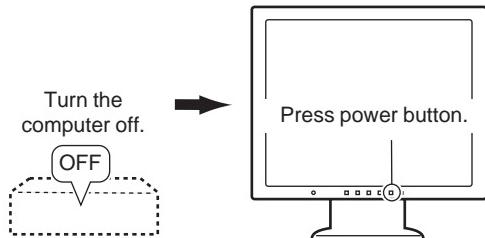
- If using the monitor for the first time or after having changed the system settings during use, perform an automatic screen adjustment.
- Depending on the type of computer or OS, you may need to install the monitor set-up information on your system.
- When connecting to a notebook, if the notebook computer's screen is set to display at the same time, the MS-DOS screen may not be able to display properly. In this case, change the settings so that only on the monitor.

1-5. Turning the power off

1. Turn the computer off.

2. Press the monitor's POWER button.

The Power LED will disappear.



If the monitor will not be used for a long time, turn off the main power switch of the monitor, and remove the power plug from the outlet.

1-6. Instructions for attaching a VESA compliant arm

An arm or stand based on the VESA standard (commercially available) can be attached to the monitor.

Procurement of the arm or stand is at the customer's discretion.

Arms or stands able to be used

Attachments must satisfy the following.

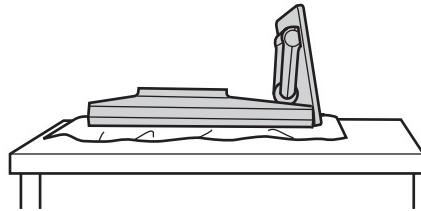
- Compatible with the VESA standard
- Have a gap of 100 mm x 100 mm between the screw holes on the section to be attached.
- Not be likely to fall off or break off after being attached to the monitor.

How to attach the arm or stand

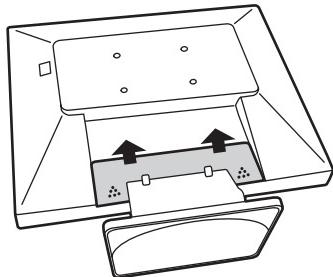
- Be careful not to overly bend the cable or add extension cords as this could lead to malfunction.
- While following these instructions, please also refer to the installation instructions in the operation manual included with the arm or stand.

Caution: Be careful not to get your fingers pinched between the display and stand nor to let the stand drop. These could lead to injury.

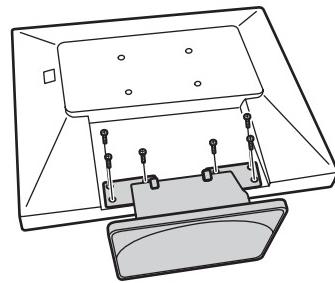
1. Remove the cables.
2. Spread out a soft cloth on a suitable horizontal surface.
3. Being careful not to damage the monitor, gently lay the monitor on its display-side down.



4. Remove the cover.
 - While pressing the areas on the sides, push it up.



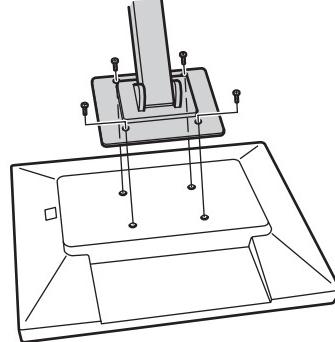
5. Remove the six screws and then remove the stand from the monitor.



Note:

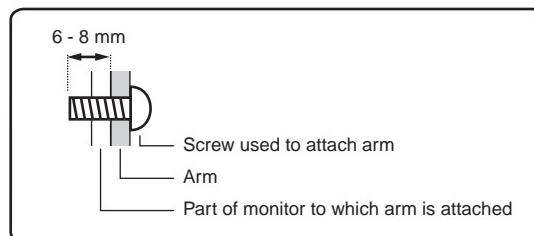
- The stand is specially made for use with this monitor. Once having removed the stand, never attempt to attach it to another device.
- Once having removed the screws, store them together with the stand and if the stand is ever re-attached be sure to use the original screws.
Using different screws could lead to a malfunction.

6. Attach the arm to the monitor with the four screws.



Note: The screws used to attach the arm should be M4 screws with a length of 6 mm ~ 8 mm protruding from the surface to be attached.

Using different screws could cause the monitor to fall off or to be internally damaged.



2. ADJUSTMENT

2-1. ADJUSTMENT METHOD

- 1) Resetting all adjustment values

[MENU] + [▼/MODE] Power ON

Press the above two buttons at same time, and while turn the power on.

- 2) ADJUSTMENT menu reset

[MENU] + [◀] Press the two buttons at same time.

- 3) Adjustment lock function

[MENU] Power ON

While pressing the MENU button, turn the power on.

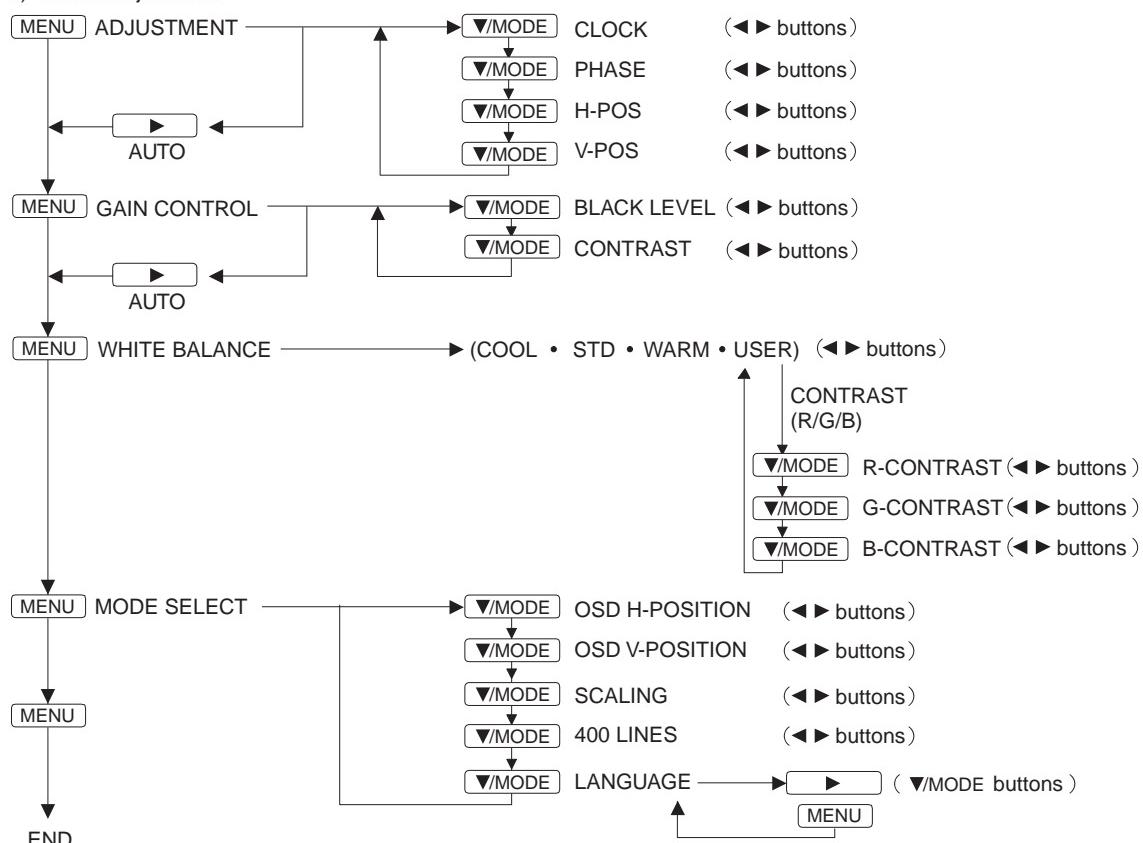
- 4) Adjusting the backlight and speaker volume

[◀] [▶] buttons (Press the **[▼/MODE]** button and select "BRIGHT" or "VOLUME".)

- 5) Setting display mode

[▼/MODE] button (STD, OFFICE, sRGB, VIVID)

- 6) Screen adjustment



- 7) Version display (for service)

[MENU] + [▶] Power ON.

Display the software version.

Press the above two buttons at same time, and while turn the power on.

MODEL NAME : LL-T17A4E
VERSION : V1.000
DATE : 23/05/2003
CHECK SUM : 595D
V-Sync : 75 Hz
H-Sync : 46 kHz

- 8) Aging (for service)

[▼/MODE] + [◀] Power ON

Press the **▶** button, Screen color is changed as following.

Red → Green → Blue → Yellow → Purple → Light Blue → White
→ Black

When the test is terminate, Power off

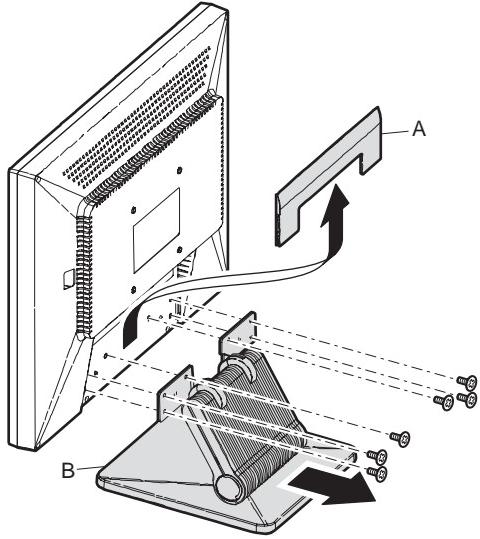
2-2. ADJUSTMENT ITEM LIST

BUTTON	ITEM		ADJUSTMENT		DESCRIPTION
MENU ↓ MENU 1 ↓ MENU 2 ↓ MENU 3 ↓ MENU 4 ↓ MENU END	MENU 1: ADJUSTMENT	MANUAL	CLOCK	0~255	CLOCK: Adjust so that vertical flicker noise is not emitted. (◀▶ buttons)
			PHASE	0~31	PHASE: Adjust so that horizontal flicker noise is not emitted. (◀▶ buttons)
			H-POS	0~255	H-POS (horizontal positioning) and V-POS (vertical positioning)
			V-POS	0~63	To center the screen image within the boundaries of the screen, adjust the left-right (H-POS) values and the up-down (V-POS) values. (◀▶ buttons)
		AUTO			Automatic screen adjustment Options in the ADJUSTMENT Menu can be adjusted automatically (CLOCK, PHASE, H-POS V-POS).
	MENU 2: GAIN CONTROL	MANUAL	BLACK LEVEL	0~63	BLACK LEVEL: Total screen brightness can be adjusted while watching the color pattern. (◀▶ buttons)
			CONTRAST	0~63	CONTRAST: While watching the color pattern, adjustments can be made so that all graduations appear. (◀▶ buttons)
		AUTO			GAIN CONTROL Menu AUTO: Every menu option is automatically adjusted using the Auto Gain Control function.
	MENU 3: WHITE BALANCE		COOL • STD • WARM (5 levels), USER R • G • B: 0~63		WHITE BALANCE Menu COOL : Color tone bluer than standard • : Color tone slightly bluer than standard STD : Color tone standard setting • : Color tone slightly redder than standard WARM : Color tone redder than standard USER R-CONTRAST: ◀ button for blue-green ▶ button for red G-CONTRAST: ◀ button for purple ▶ button for green B-CONTRAST: ◀ button for yellow ▶ button for blue
	MENU 4: MODE SELECT	OSD H-POSITION (OSD horizontal position)			The position of the OSD display can be moved to the left and right. (◀▶ buttons)
		OSD V-POSITION (OSD vertical position)			The position of the OSD display can be moved up and down. (◀▶ buttons)
		SCALING (Level of scaling)	0~2		SCALING (Level of scaling) Adjusts the image to optimum sharpness when Screen expansion is taken. (◀▶ buttons)
		400 LINES (degree of resolution)	640, 720		You can specify the horizontal resolution of a 400 line screen when using US text, etc. (◀▶ buttons)
		LANGUAGE	7 countrys DEUTSCH, ENGLISH, ESPAÑOL, FRANÇAIS, ITALIANO, NETHER- LAND, SVENSKA		LANGUAGE Messages displayed on the screen and OSD Menu contents can be changed to the following languages. Dutch, English, French, German, Spanish, Italian, Swedish.
▼/MODE					Select the item
			sRGB, OFFICE, STD, VIVID		Setting color mode when the ADJUSTMENT Menu is not displayed. STD: Displays image with the color tone results from original scheme of liquid crystal panel. OFFICE: Display brightness is lowered. The brightness is set to a level that is easier on the eyes than with other modes and saves power. sRGB: sRGB is international standard of color representation specified by IEC (International Electrotechnical Commission). Color conversion is made in taking account of liquid crystals characteristics and represents color tone close to its original image. VIVID: Displays an image with dynamic and VIVID primary colors.
◀▶			Bright: 0~31 Volume: 0~22		Adjusting the backlight Adjusting the speaker volume
POWER OFF					

CHAPTER 3. DISASSEMBLY AND ASSEMBLY

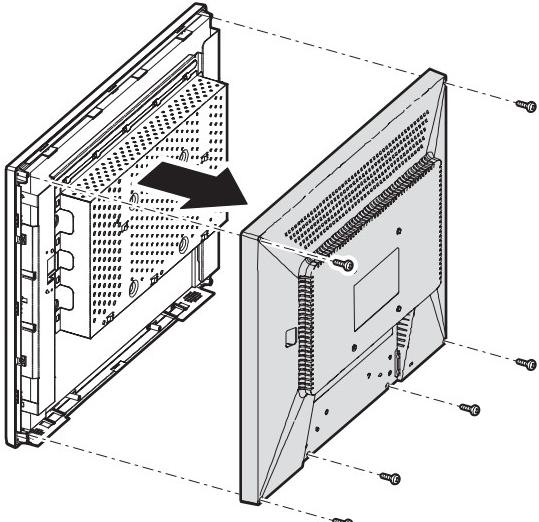
1. STAND UNIT REMOVAL

- 1) Remove the rear cover (A) by sliding it upward.
- 2) Remove the screws, and remove the stand unit (B).

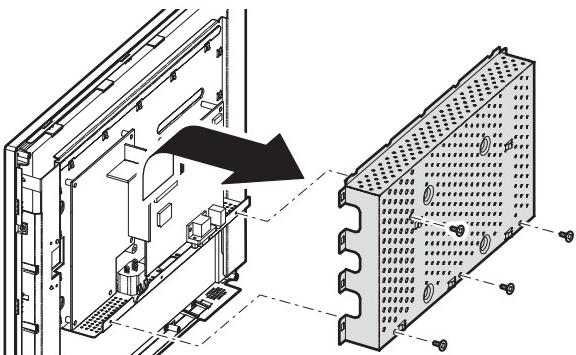


2. I/F PWB REMOVAL

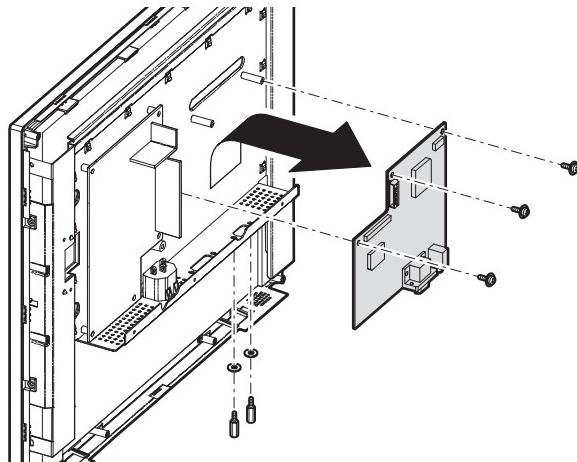
- 1) Remove the screws, and remove the rear cabinet.



- 2) Remove the screws, and remove the shield by sliding it upward.

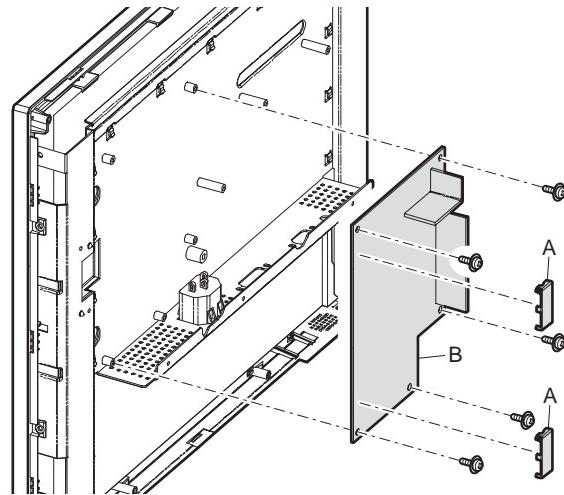


- 3) Remove all the connectors and flat cables on the PWB.
- 4) Remove the hex. screws, washer and screws, and remove the I/F PWB by sliding it upward.



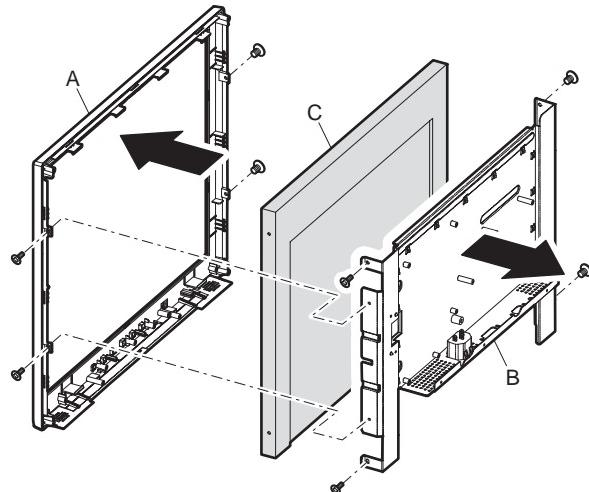
3. P/I PWB REMOVAL

- 1) Remove the connector covers (A), and remove all the connectors on the PWB.
- 2) Remove the screws, and remove the P/I PWB (B).

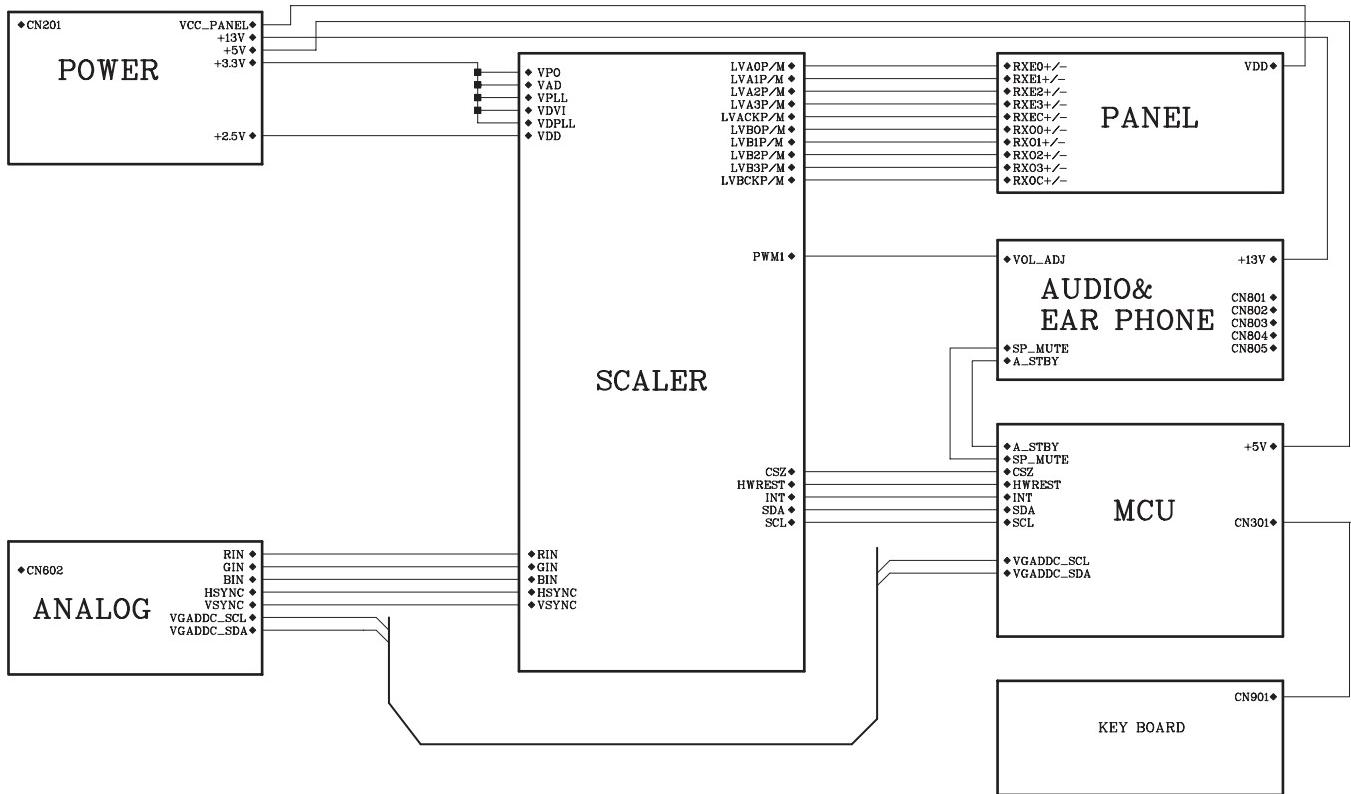


4. LCD UNIT REMOVAL

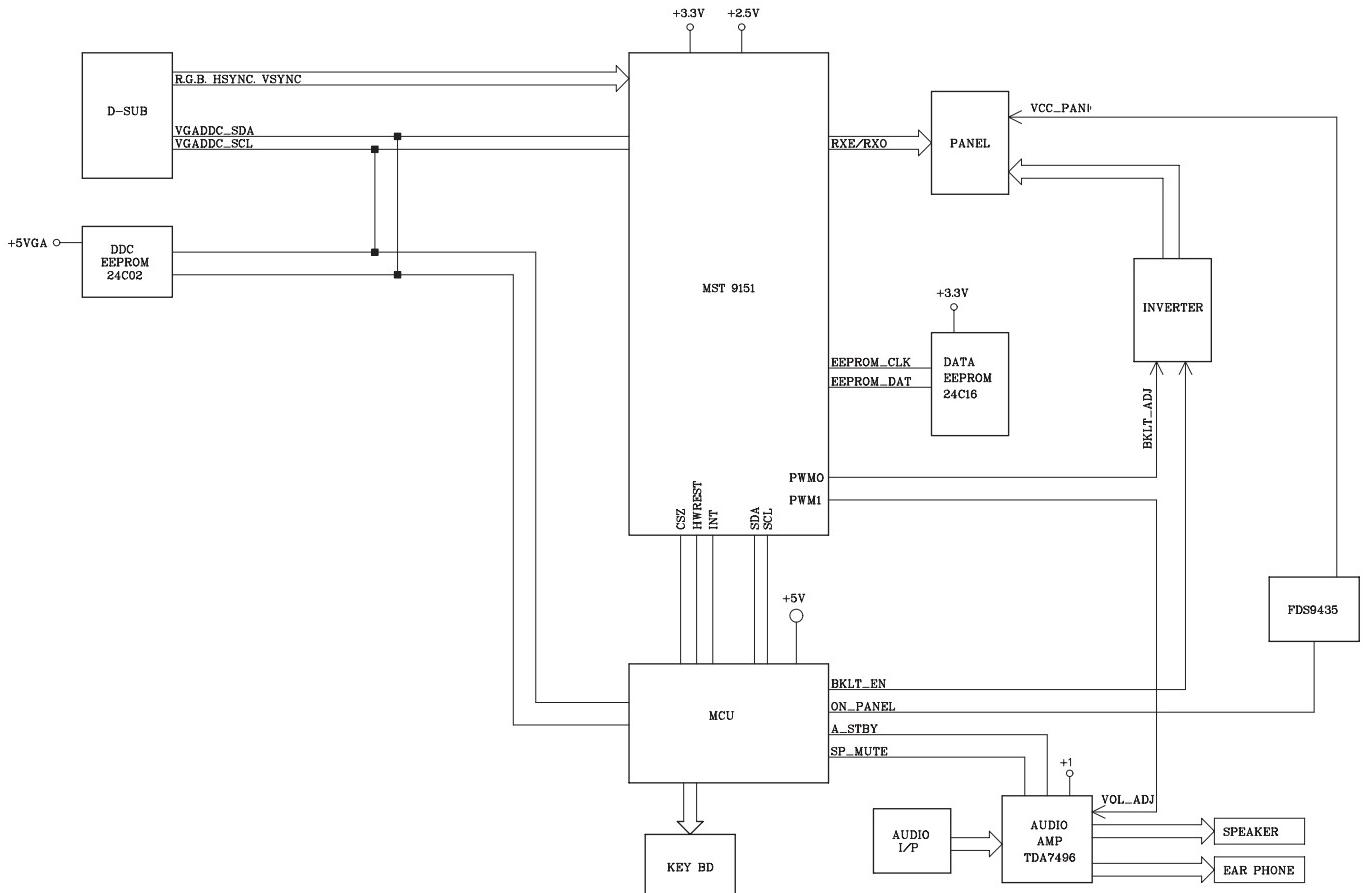
- 1) Remove the screws, and remove the front cabinet (A).
- 2) Remove the screws, and remove the LCD unit (C) from the bracket panel (B).



CHAPTER 4. BLOCK DIAGRAM

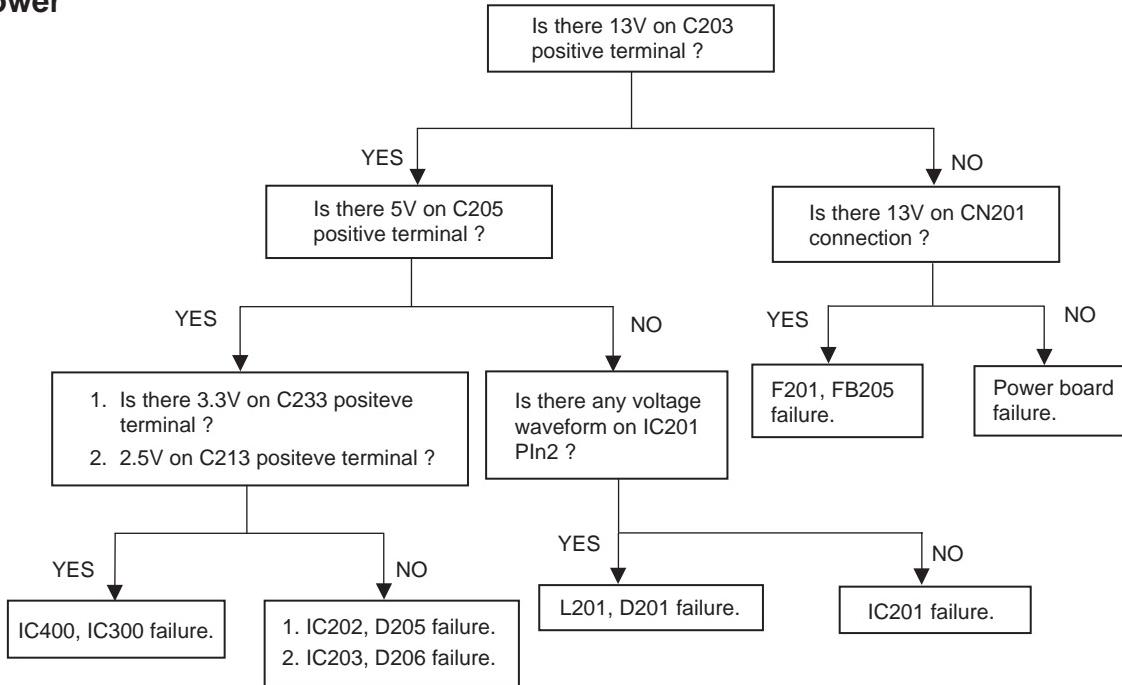


LCD MONITOR

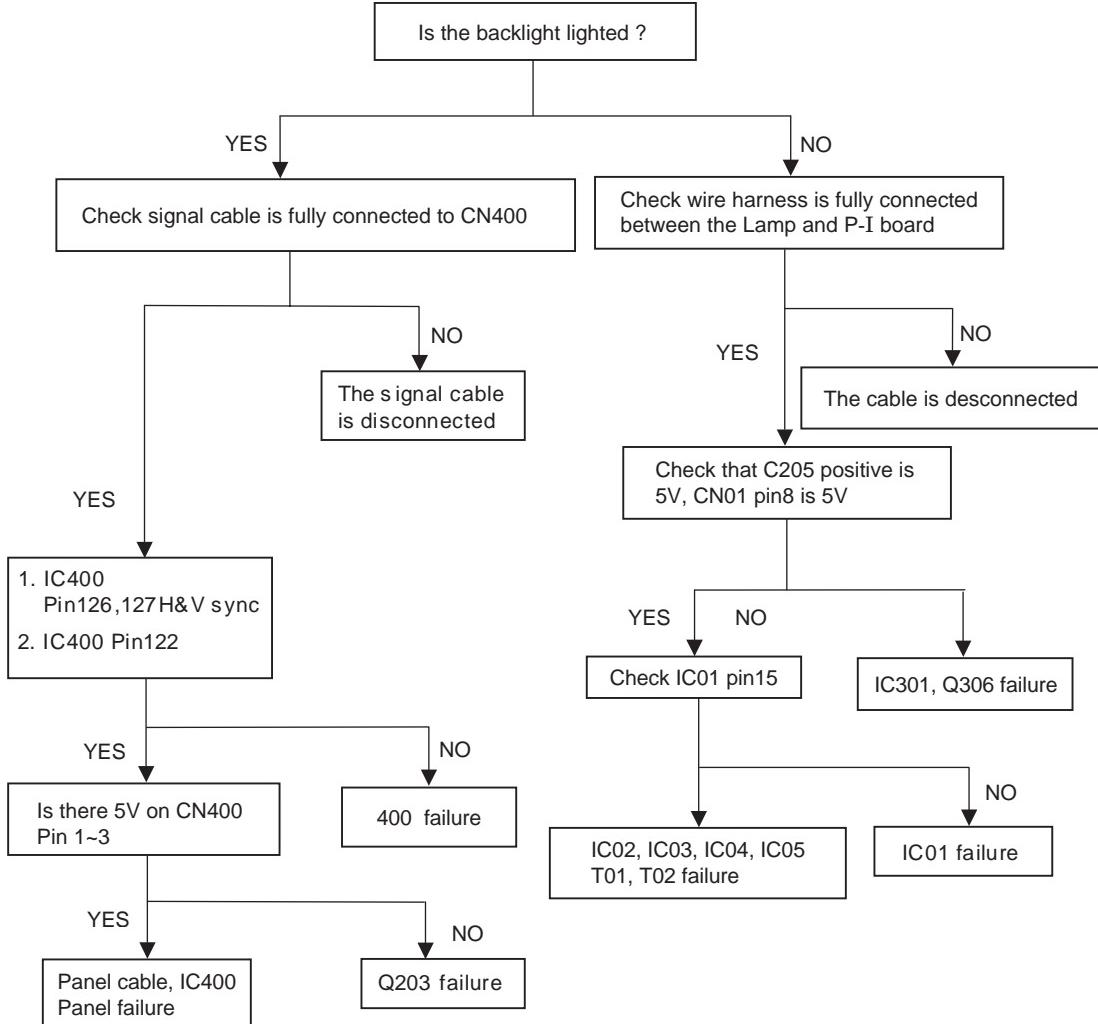


CHAPTER 5. TROUBLE SHOOTING

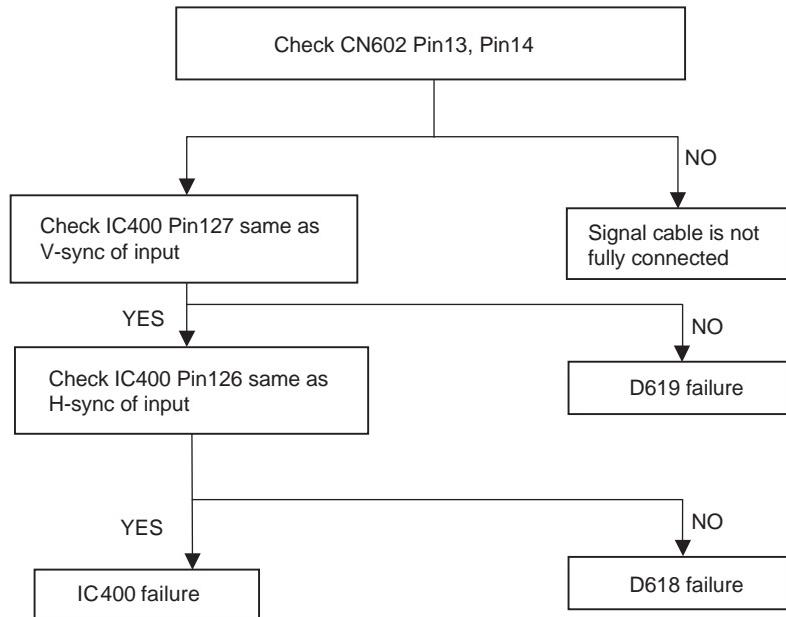
1. No Power



2. No Display on Screen (LED is green)

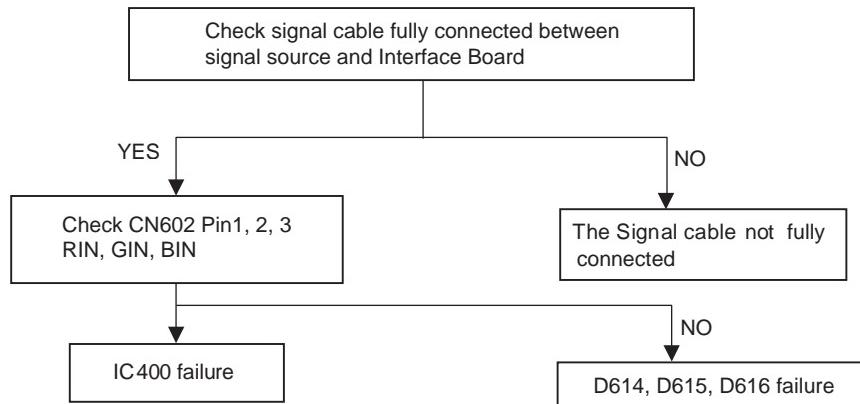


3. Show “No Signal” on screen

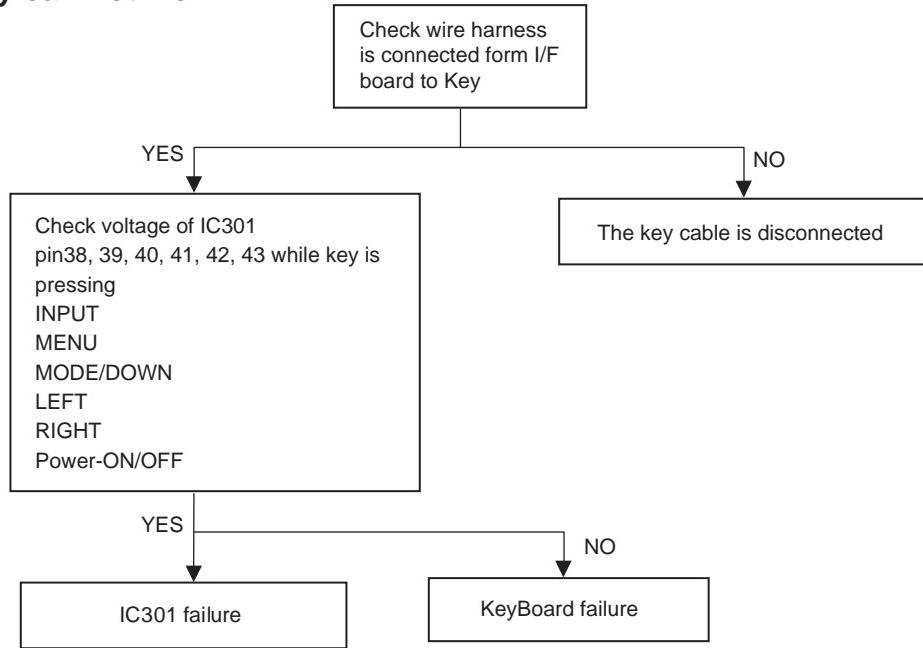


4. color interference

(Test pattern: 32 Gray 1280 x 1024@60Hz)

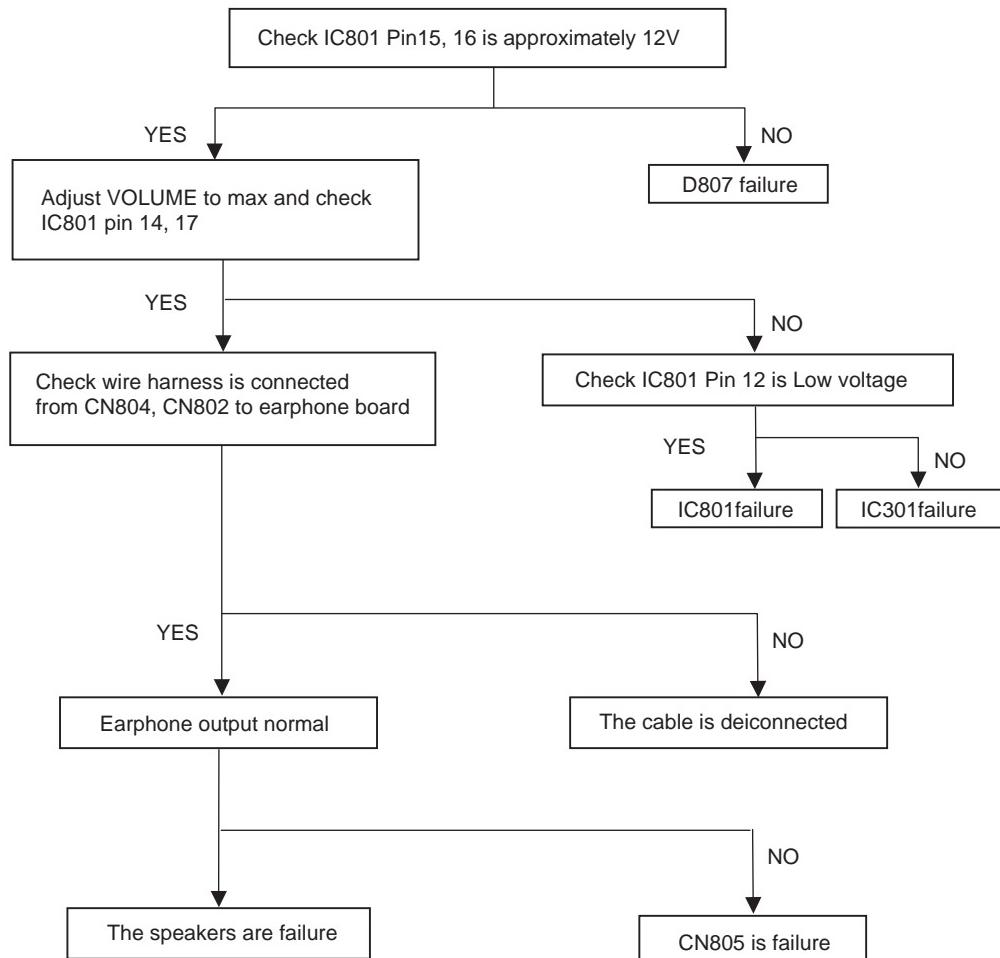


5. Function key can not work

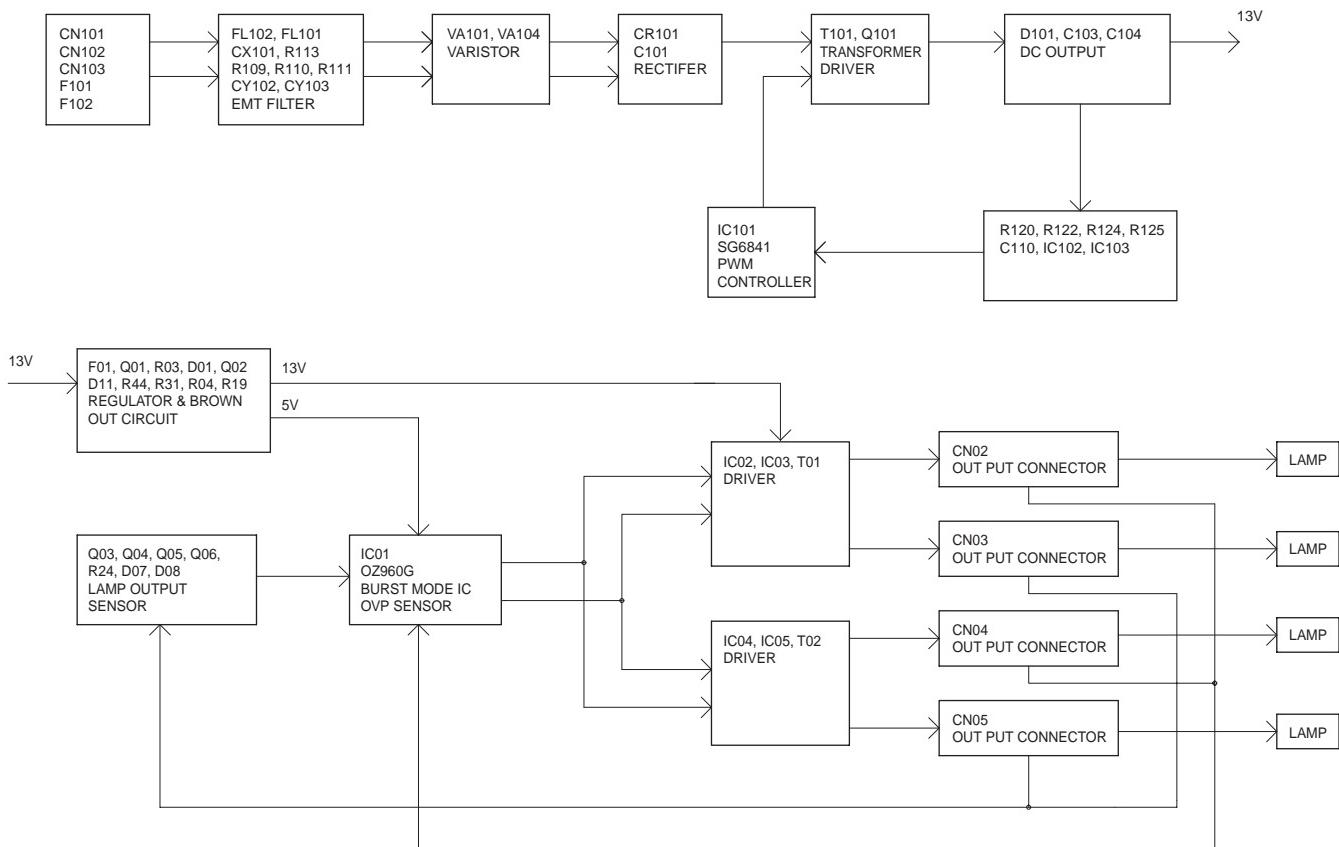


6. No Sound

(Test signal: Vrms sine waveform)

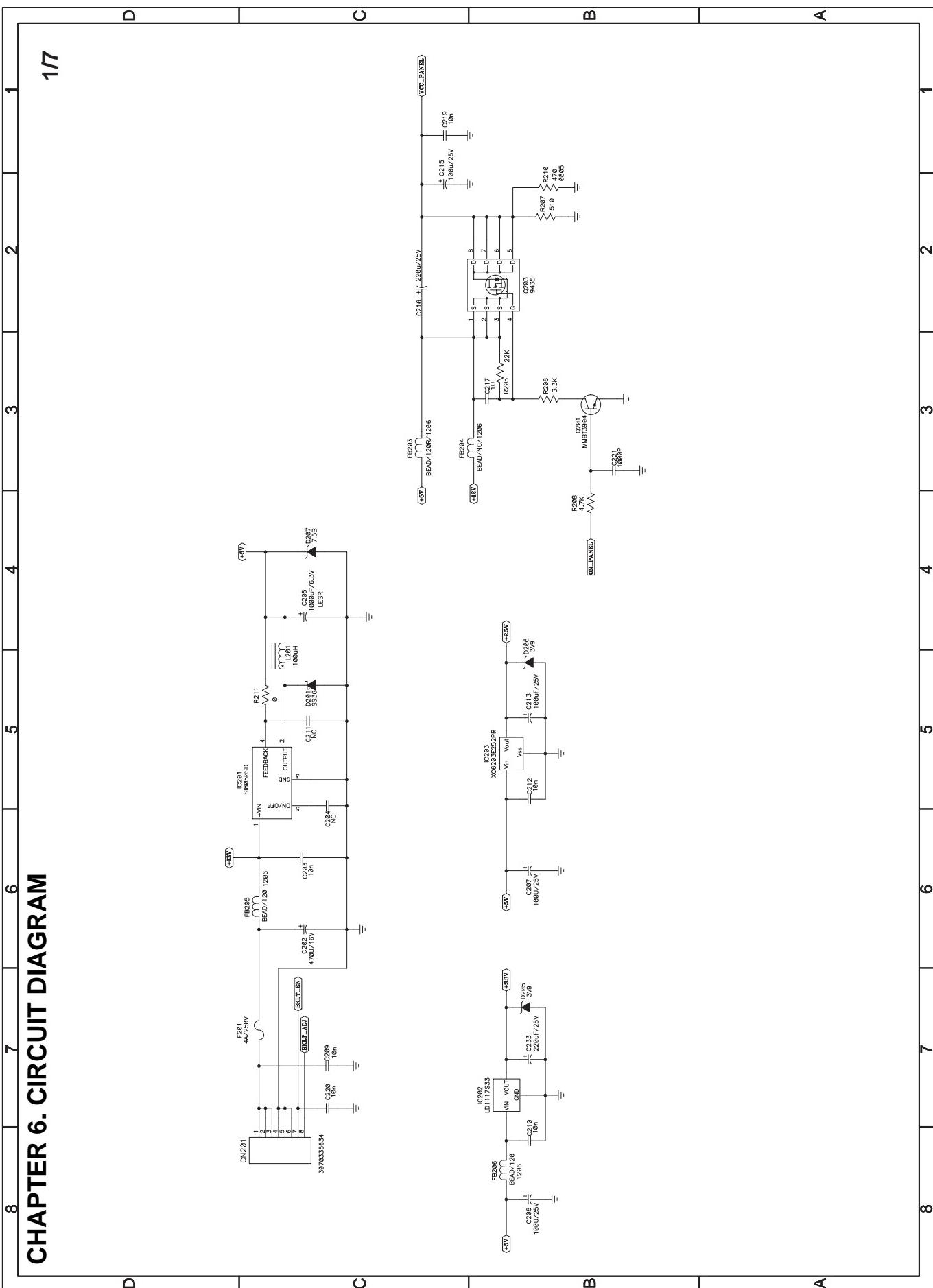


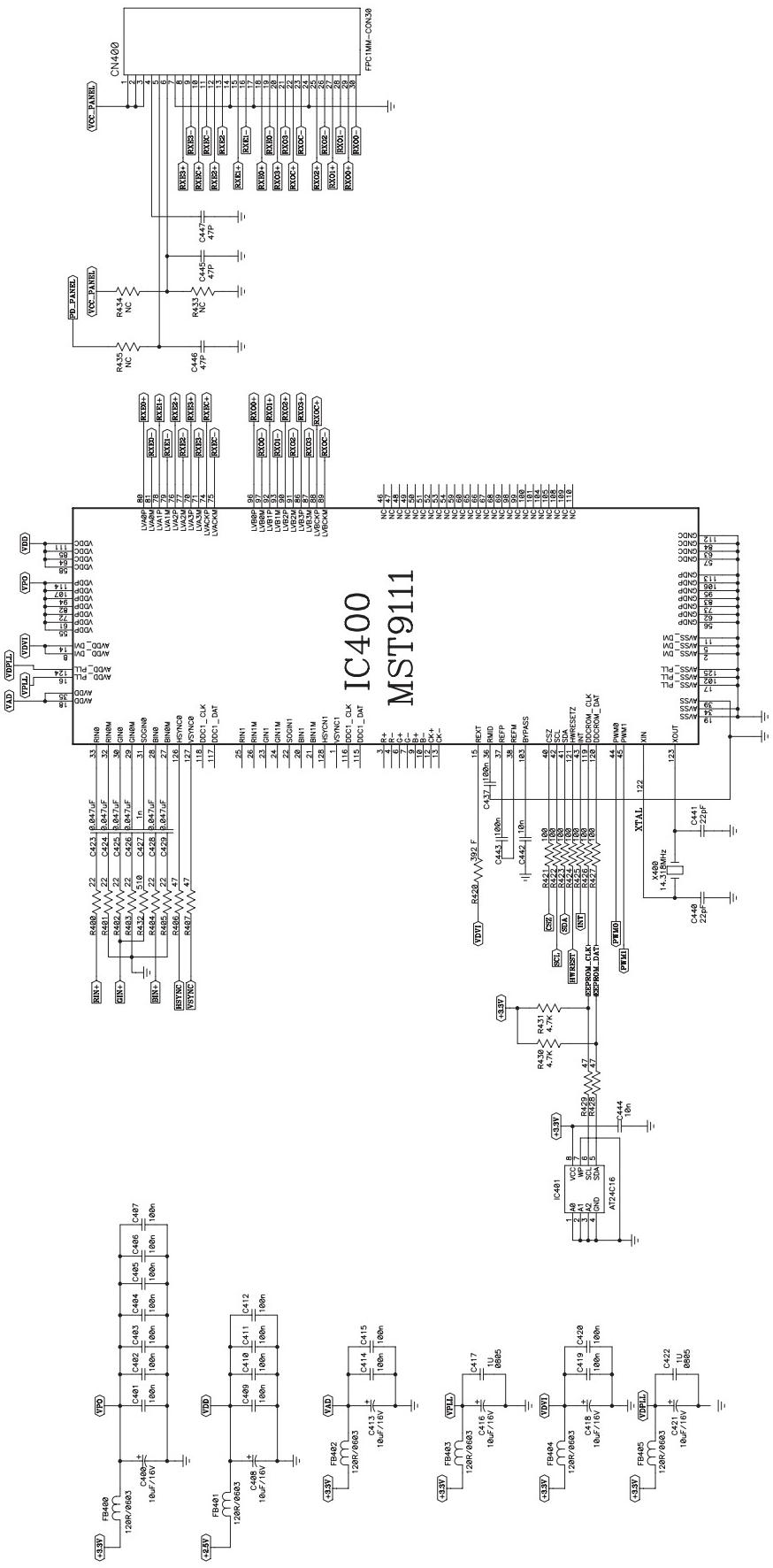
POWER + INVERTER

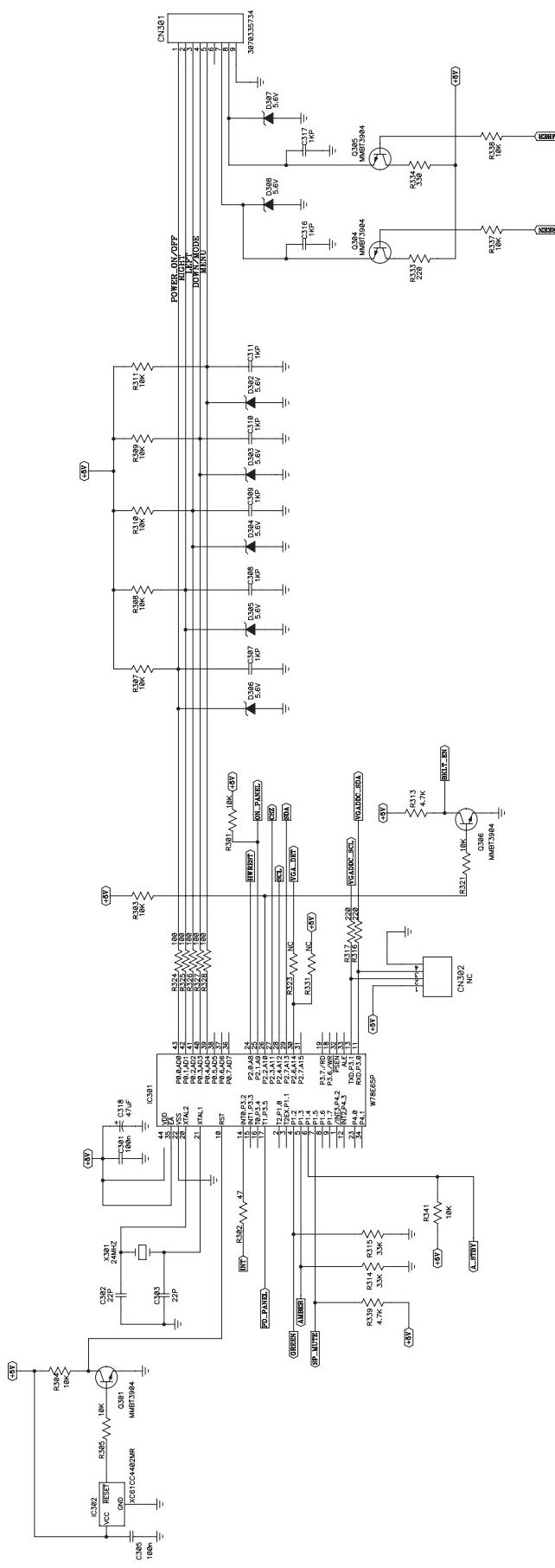


CHAPTER 6. CIRCUIT DIAGRAM

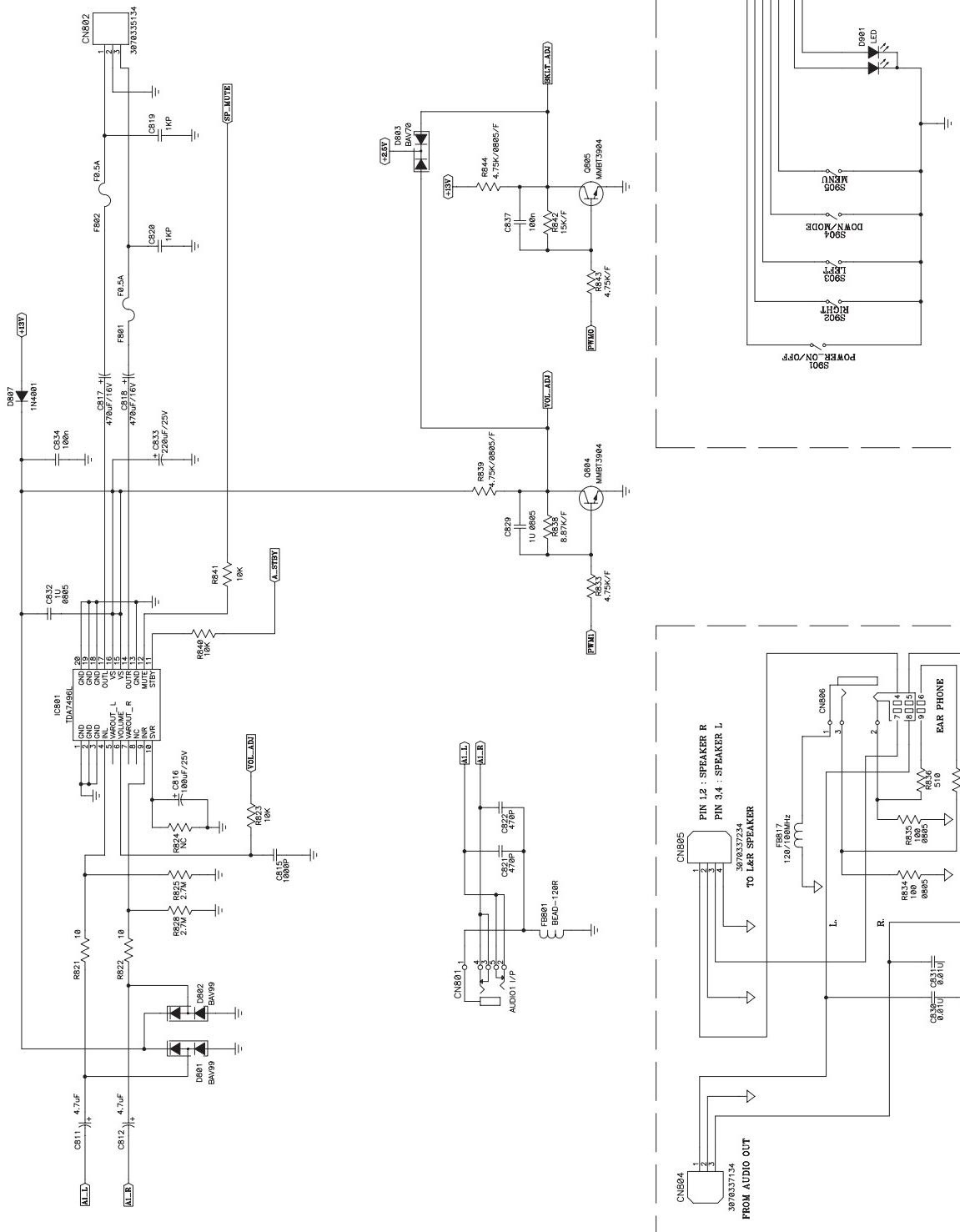
1/7

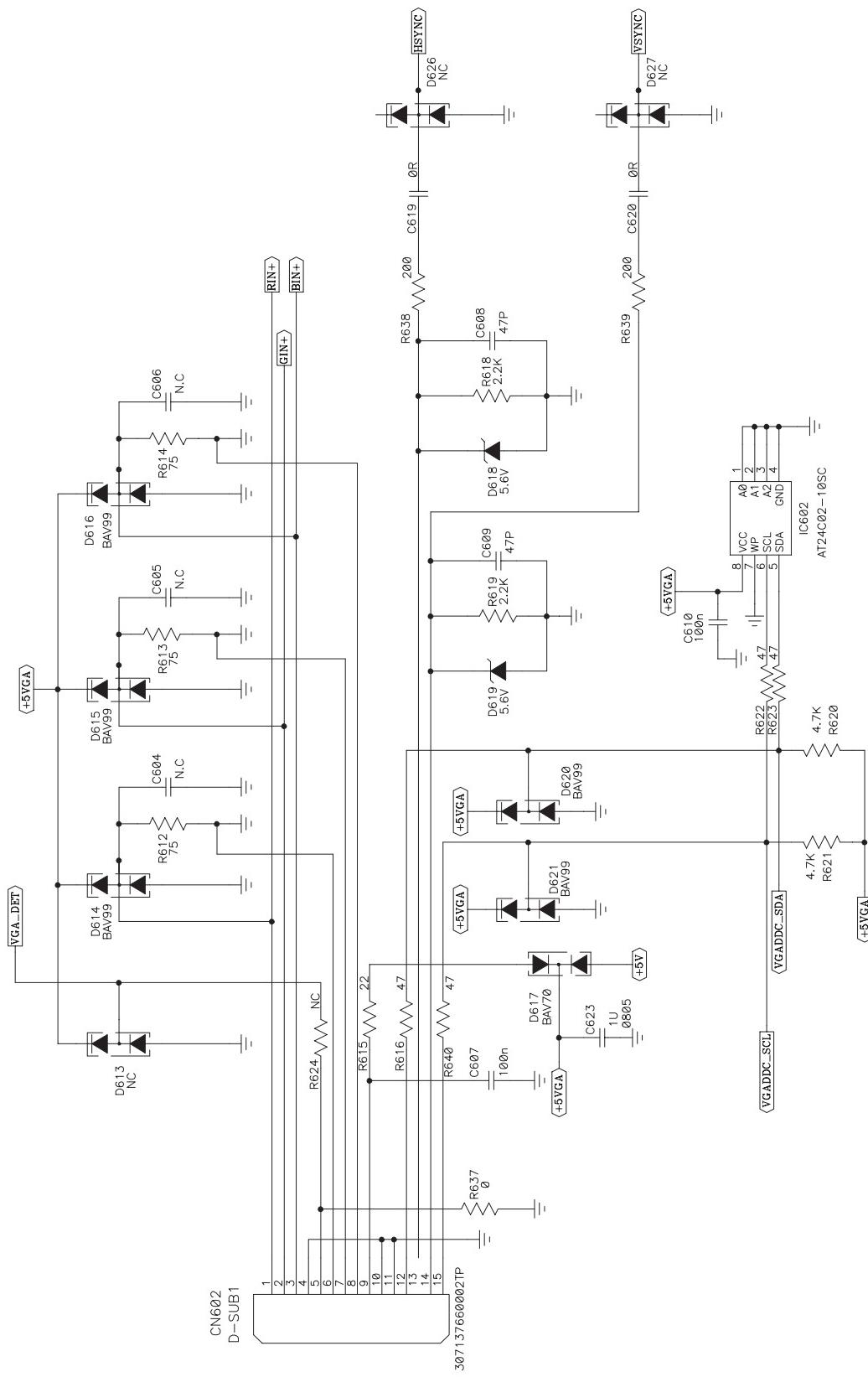


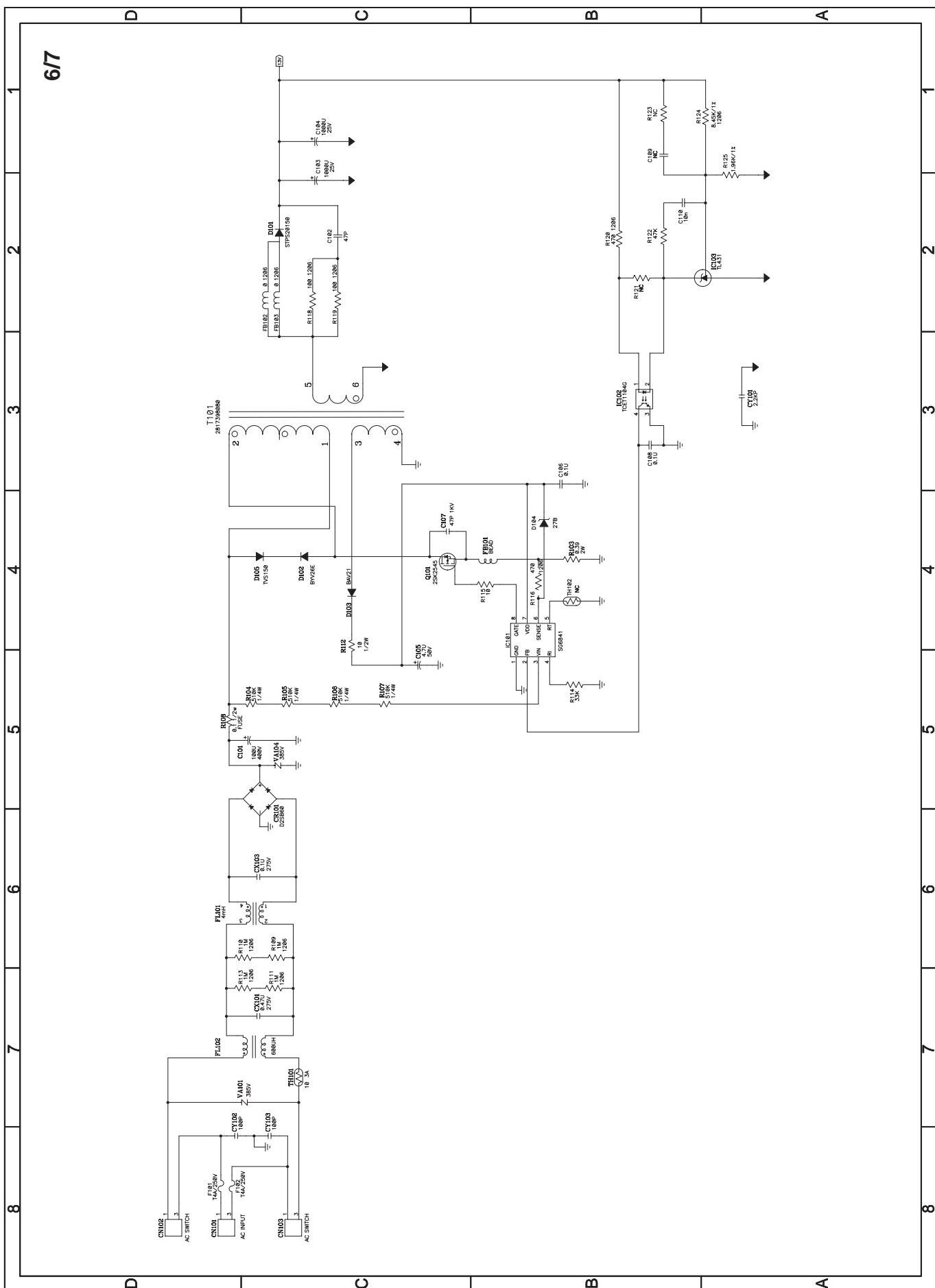


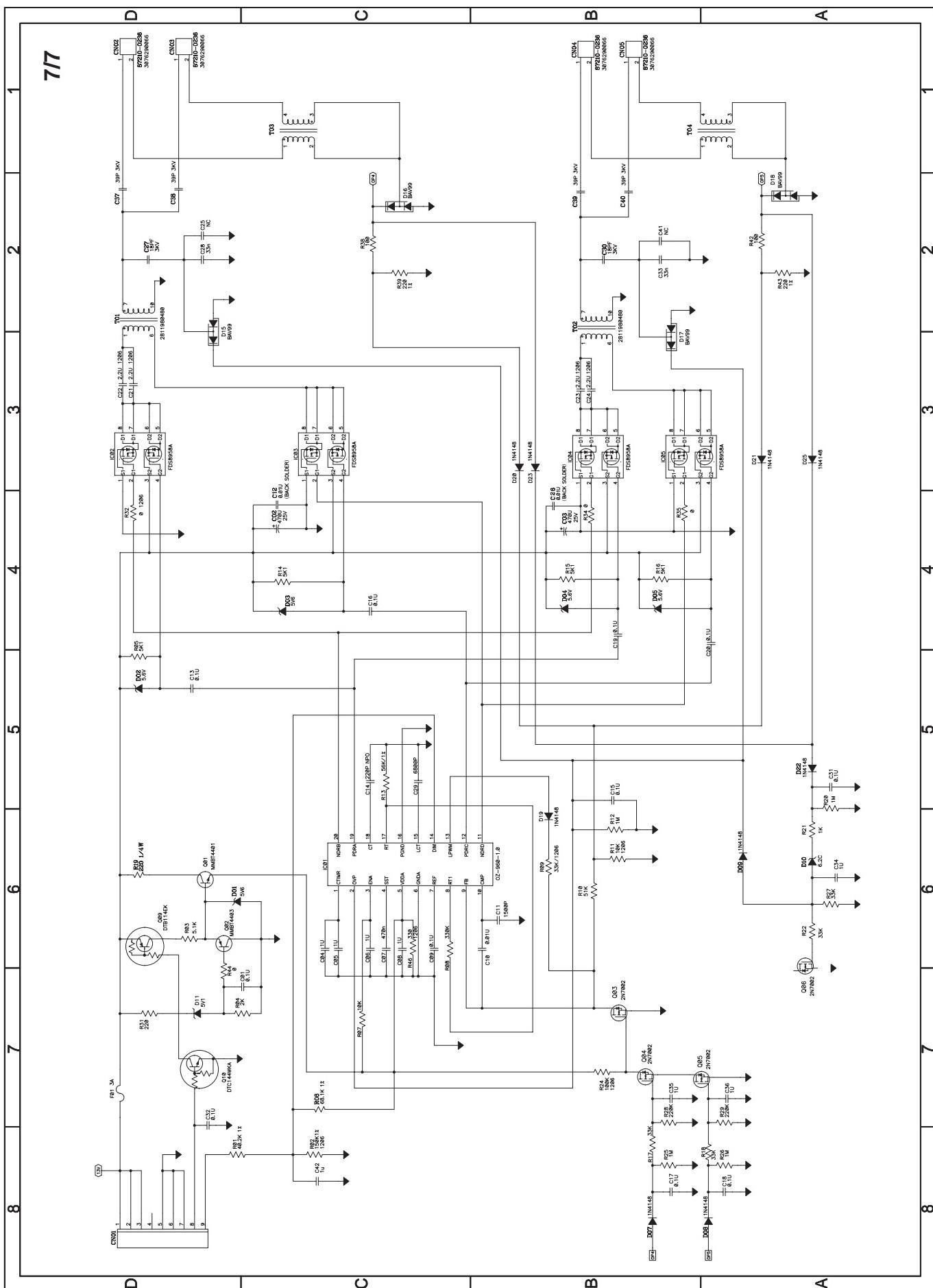


LL-T17A4-H/B CIRCUIT DIAGRAM





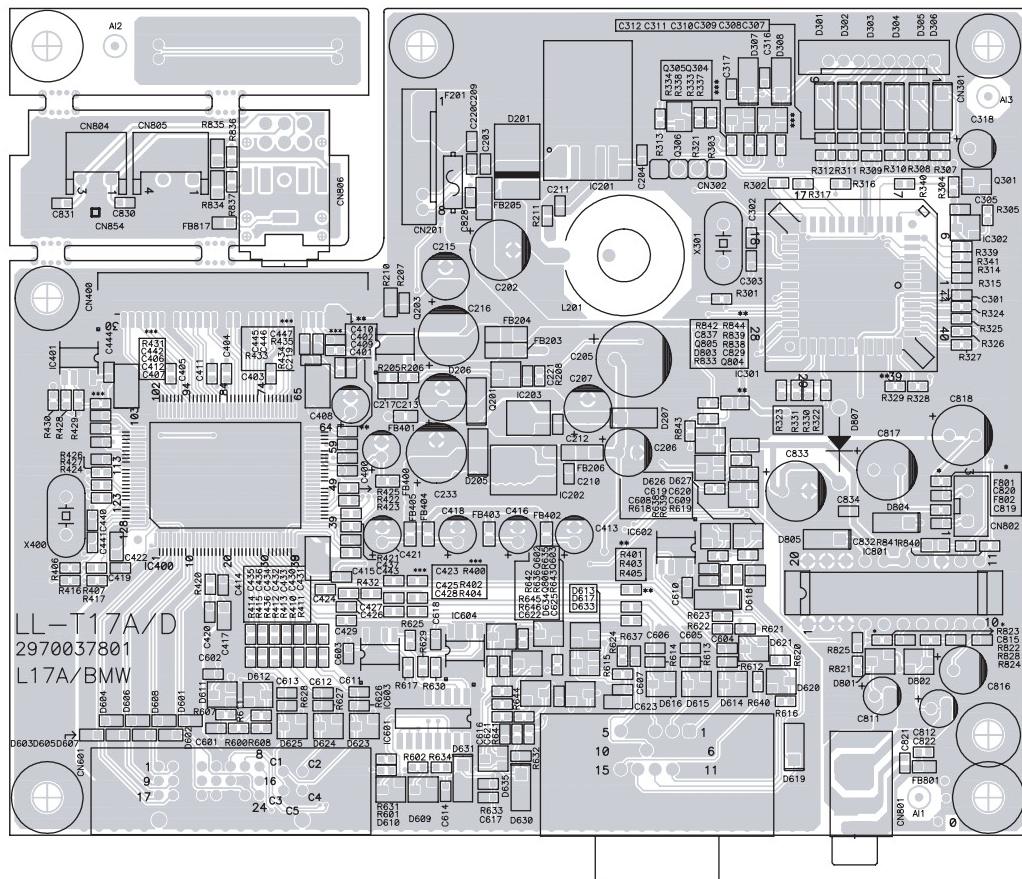




CHAPTER 7. PWB LAYOUT

1. MAIN PWB

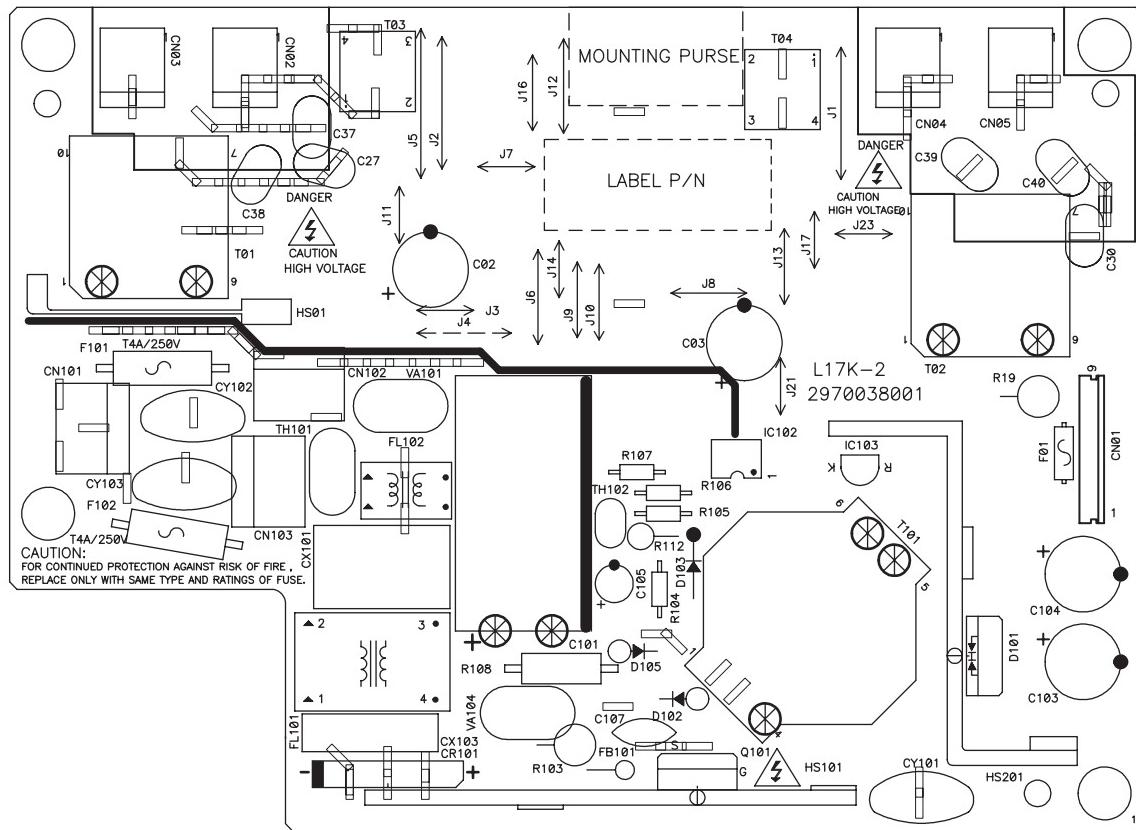
A side



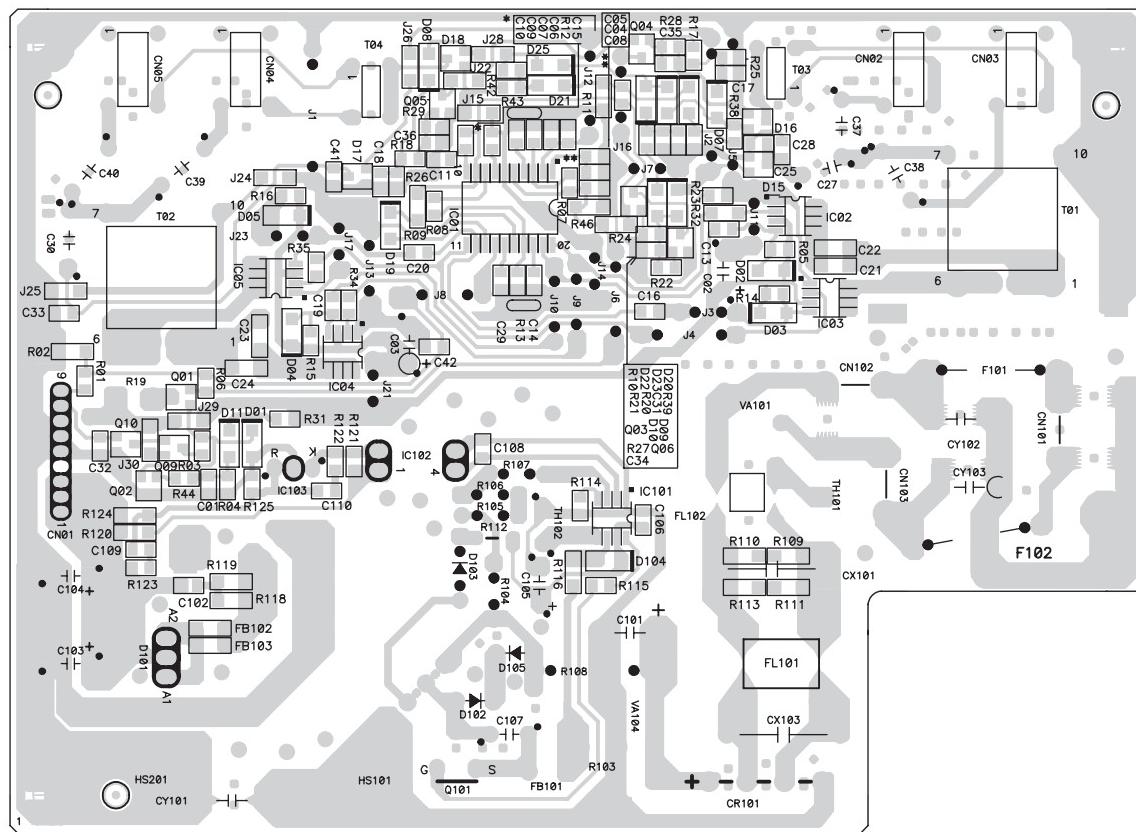
B side

2. POWER SUPPLY PWB

A side



B side



SHARP

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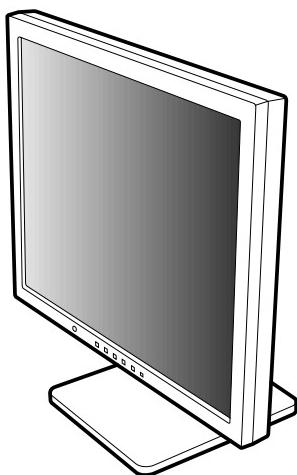
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SHARP PARTS GUIDE

CODE : 00ZLLT17A4EPE



LCD MONITOR

LL-T17A4B
MODEL LL-T17A4H

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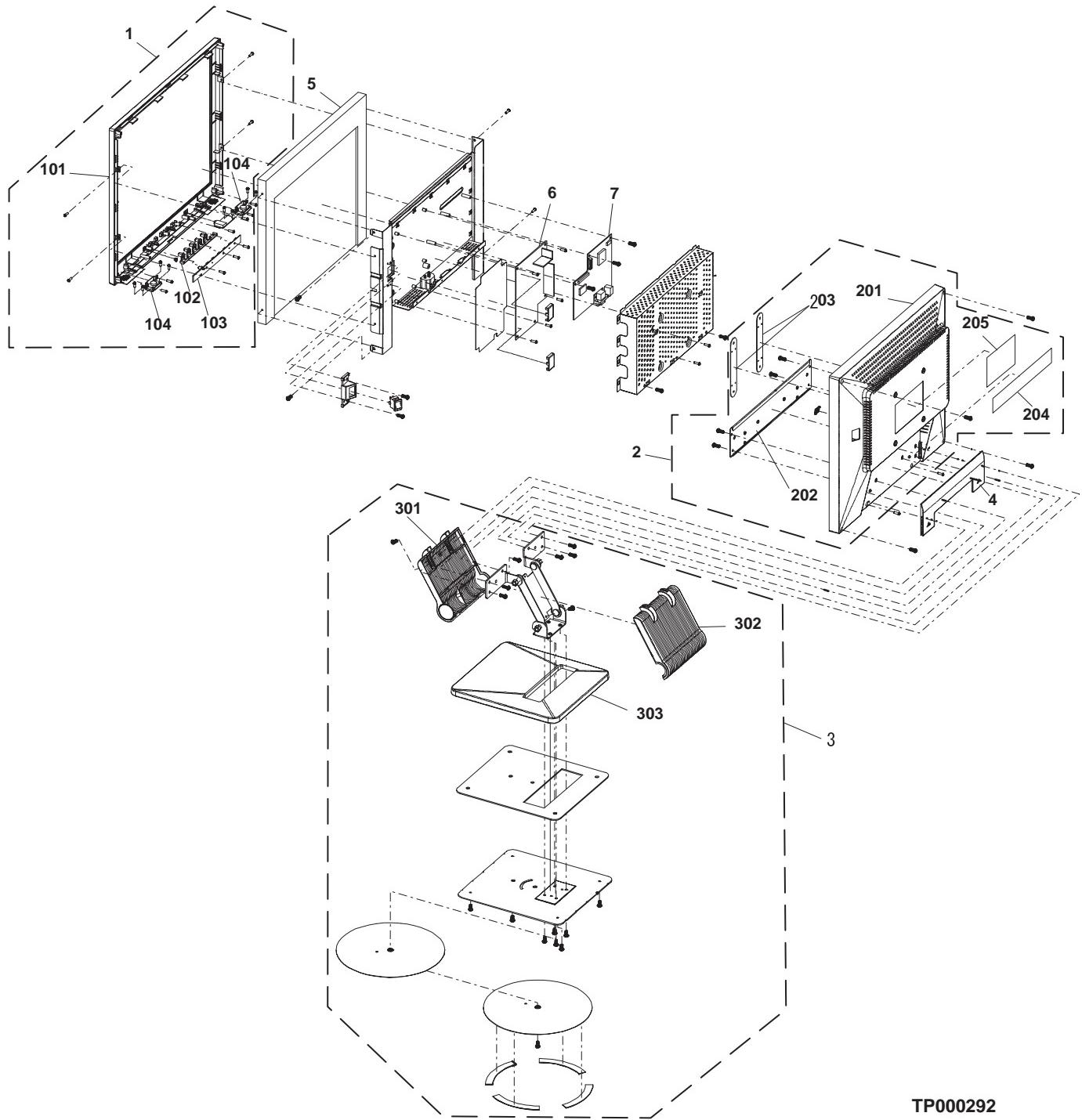
- [1] Exteriors
 - [2] Packing material & Accessories
 - [3] Service tool
- index

Model Name	Product Name		Color
	For North America	For Other	
LL-T17A4H	LL-T17A4U	LL-T17A4E	Gray
LL-T17A4B	LL-T17A4Y	LL-T17A4P	Black

Parts marked with "⚠" are important for maintaining the safety of the set. be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

1 Exteriors

1 Exteriors



TP000292

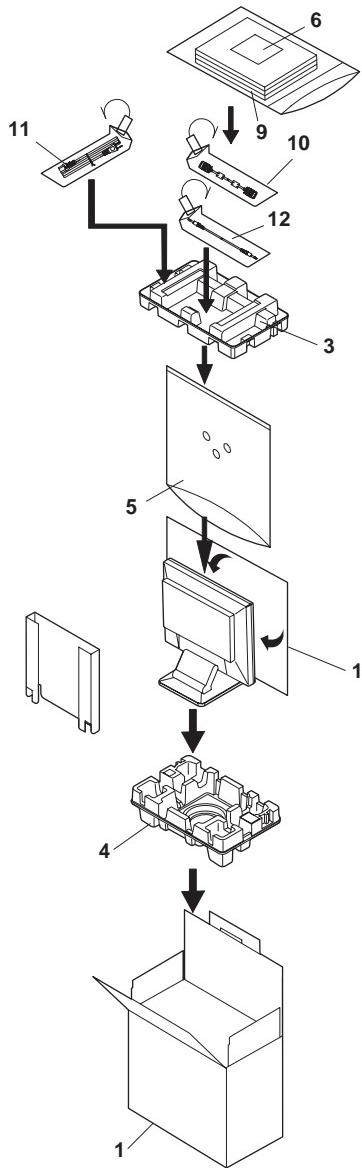
2 Packing material & Accessories

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
1	0NK3512242500	AY	N	D	Carton	[LL-T17A4-E/U]
	0NK3512242600	AY	N	D	Carton	[LL-T17A4-P/Y]
3	0NK3511380800	AU		D	Pulp Cushion (Top)	
4	0NK3511380900	AU		D	Pulp Cushion (Bottom)	
5	0NK3500938300	AU		D	PE Bag (Full Set)	
6	0NK3532067800	AS		D	CD-ROM	
9	0NK5011091000	AX	N	D	UsersManual'	
10	0NK3080420400	AX		C	RGB cable(Gray)	[LL-T17A4-E/U]
	0NK3080421600	AX		C	RGB cable(Black)	[LL-T17A4-P/Y]
11	0NK3090134800	BC	N	B	Power cord(only JP model Buy from Japan)	[LL-T17A4-U]
	0NK3072000300	BC	N	B	Power cord(only JP model Buy from Japan)	[LL-T17A4-Y]
12	0NK3080324701	AY		C	Audio cable(Gray)	[LL-T17A4-E/U]
	0NK3080324801	AY		C	Audio cable(Black)	[LL-T17A4-P/Y]
13	0NK3500937400	AS		D	PE BAG	

3 Service tool

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
1	0NK5610011006	CA		S	Software re-input tool sets (hardware only)

2 Packing material & Accessories



TP000293

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MEMO